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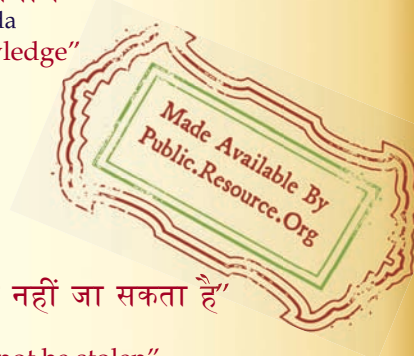
IS 3193 (1984): Cotton Yarn for Braiding for Reinforcement and Electric Cables [TXD 31: Man-Made Fibres, Cotton and their Products]



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“Knowledge is such a treasure which cannot be stolen”

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IS : 3193 - 1984

Indian Standard
SPECIFICATION FOR
COTTON YARN FOR REINFORCEMENT AND
BRAIDING FOR ELECTRIC CABLES
(*First Revision*)

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR COTTON YARN FOR REINFORCEMENT AND BRAIDING FOR ELECTRIC CABLES (*First Revision*)

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Indian Standard
SPECIFICATION FOR
COTTON YARN FOR REINFORCEMENT AND
BRAIDING FOR ELECTRIC CABLES
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 28 December 1984, after the draft finalized by the Industrial Textiles Sectional Committee had been approved by the Textile Division Council.

0.2 Cotton yarn conforming to this standard is used for reinforcement as well as for braiding of electric cables. The yarn used to form a braid may be single or twisted. The cotton yarn may be coloured to match the established colour code in the industry.

0.3 This standard was first published in 1965. In the present revision the following major changes have been carried out:

- a) Colour fastness ratings have been changed and 'Mechanical Washing (severe) Test' has been replaced by 'Washing Fastness Test 3'.
- b) The use of sulphur dyes for colouring yarn has been prohibited.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes constructional details and other particulars of 11 varieties of cotton yarn, grey, bleached or dyed, used for reinforcement and braiding in the manufacture of electric cables.

*Rules for rounding off numerical values (*revised*).

1.2 This standard does not specify the colour of the dyed yarn (*see also 4.2*).

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 Braiding — The plaited protective covering of a cable.

3. GENERAL REQUIREMENTS

3.1 The yarn shall be reasonably free from foreign particles, neps, snarls, slubs and other defects. It shall be evenly spun.

3.2 The yarn may be dyed with any suitable dyes for obtaining the desired colour, only sulphur dyes shall not be used for dyeing yarn.

3.3 The yarn shall be supplied in cones or cheeses. All broken ends in cones, or cheeses shall be properly pieced.

4. SPECIFIC REQUIREMENTS

4.1 The yarn of different varieties shall conform to the requirements specified in Table 1.

4.2 Colour Fastness — The colour fastness rating of the dyed yarn shall be as specified in Table 2, when tested by the relevant method.

4.3 Sealed Sample — If, in order to illustrate or specify the general appearance, shade, etc, of yarn, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

4.3.1 The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

5. PACKING

5.1 Unless otherwise agreed upon by the buyer and the seller, the yarn shall be packed in accordance with the procedure laid down in IS:1347-1972* or IS:293-1980† as the case may be.

*Specification for inland packaging of cotton cloth and yarn (*first revision*).

†Code for seaworthy packaging of cotton yarn and cloth (*third revision*).

TABLE 1 PARTICULARS OF COTTON YARN FOR REINFORCEMENT AND BRAIDING FOR ELECTRIC CABLES

(Clause 4 1)

VARIETY No.	UNIVERSAL COUNT* (COTTON COUNT AND PLY)	BREAKING LOAD (SINGLE STRAND STRENGTH) on 50 cm TEST LENGTH, Min, NEWTON (gf)
(1)	(2)	(3)
1	100 tex (6 ^S)	7.84 (800)
2	60 tex (10 ^S)	6.37 (650)
3	42 tex (14 ^S)	3.92 (400)
4	36 tex × 3 (16 ^S /3)	14.70 (1 500)
5	36 tex (16 ^S)	3.43 (350)
6	30 tex × 2 (20 ^S /2)	6.37 (650)
7	23 tex (26 ^S)	2.94 (320)
8	20 tex × 2 (30 ^S /2)	5.88 (600)
9	20 tex (30 ^S)	2.69 (275)
10	15 tex (40 ^S)	1.96 (200)
11	10 tex × 2 (60 ^S /2)	2.94 (300)
TOLERANCE	± 5 percent	—
METHOD OF TEST	IS:1315-1977†	IS:1670-1970‡

*Universal count in tex = the number of grams per kilometre of yarn.

†Method for determination of linear density of yarns spun on cotton system (first revision).

‡Method for determination of breaking load, elongation at break and tenacity of yarns (first revision).

6. MARKING

6.1 The cases/cartons containing yarn shall be marked with the following:

- Name of the material;
- Count of yarn;
- Gross mass of the case;
- Net mass of the case;
- Name of the manufacturer, initials, trade-mark, if any; and
- Any other information required by the buyer or by the law in force.

6.1.1 The case/carton may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

TABLE 2 COLOUR FASTNESS RATINGS

(Clause 4.2)

CHARACTERISTIC	REQUIREMENT	METHOD OF TEST
(1)	(2)	(3)
Light fastness	3 or better	IS:686-1957* or IS:2454-1967†
Wash fastness (Test 3)	3 or better	IS:764-1979‡

*Method for determination of colour fastness of textile materials to daylight.

†Method for determination of colour fastness of textile materials to artificial light (xenon lamp).

‡Method for determination of colour fastness of textile materials to washing : Test 3 (*second revision*).

7. SAMPLING

7.1 Lot — All the cases/cartons of cotton yarn of the same variety delivered to one buyer against one despatch note, shall constitute a lot.

7.2 The conformity of a lot to the requirements of this standard shall be determined on the basis of tests carried out on the yarn selected from it.

7.3 Unless otherwise agreed to between the buyer and the seller, the number of cases to be selected at random from the lot shall be in accordance with col 2 of Table 3.

TABLE 3 NUMBER OF CASES/CARTONS TO BE SELECTED

(Clause 7.3)

LOT SIZE (NO. OF CASES/CARTONS)	NUMBER OF CASES/CARTONS TO BE CHOSEN
(1)	(2)
1 and 2	All
3 to 8	3
9 to 15	4
16 to 25	5
26 to 40	7
41 and above	10

7.3.1 In order to ensure randomness of selection of cases/cartons, random number of tables may be used.

NOTE — In case such tables are not available, the following procedure may be adopted:

Starting from any case in the lot, the cases in the lot shall be serially numbered as 1, 2, 3.....up to r (where r is integral part of N/n where N =lot size, and n =number of cases to be selected). Every r th case thus counted shall be removed until the requisite number is obtained.

7.4 From each case, five packages consisting of cones or cheese shall be selected at random. In case the total number of cones, cheeses selected is less than 15, additional packages from the same lot shall be selected so as to make the total number 15. From each such package, only one test sample shall be selected (discarding at least first 50 m from the package). The length of the test sample to be selected shall be at least 100 m.

7.4.1 One test specimen from each of the test samples shall be drawn for testing each of the requirements mentioned in 4, except colour fastness.

7.4.2 For testing colour fastness, five test specimens shall be drawn at random from the test samples.

7.5 Criteria for Conformity — The lot shall be considered to be in conformity with the requirements of this standard if the following conditions are satisfied:

- a) The number of packages failing to satisfy the requirements of any characteristic, except colour fastness, does not exceed the corresponding number given in Table 4.
- b) None of the test specimens selected for testing colour fastness fails to satisfy the corresponding requirements.

TABLE 4 CRITERIA FOR CONFORMITY

[Clause 7.5(a)]

NO. OF PACKAGES TESTED	PERMISSIBLE NO. OF NON-CONFORMING PACKAGES
(1)	(2)
15	1
20	1
25	1
35	2
50	3

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Grading of fibres and yarns
Grading of raw silk
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Jute—bags and fabrics
Jute mill accessories
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National flag of India
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Physical test methods
Rayon fabrics

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Silk fabrics—handloom and khadi
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Spinning machinery components
Terminology
Textile floor coverings
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